

# **Navajo Abandoned Uranium Mine**

## **Site Screen Report**

*This form is for use at the site of abandoned uranium mines (AUM) located on Navajo Nation lands. Applicable sites include all mine and mine features that have or have not undergone reclamation by the Navajo Abandoned Mine Lands Reclamation Program, including features, adits, pits and waste piles. Applicable sites also include all AUM sites listed in the USEPA CERCLIS database, all sites listed in the 2008 AUM GIS Report issued by USACOE and USEPA, all AUM sites on allotment lands associated with the Navajo Nation, and any and all AUM sites not listed in any database located on Navajo lands. Reconnaissance of any sites located on lands adjacent to Navajo lands that may be impacting Navajo lands will need to be coordinated with the authorities appropriate to those lands.*

*The purpose of the form is to ascertain the status and location of the identified AUM site, and record all immediate site information associated with the mine site. Decisions and recommendations on what additional steps are needed will be provided on a separate document.*

## **Mesa V Mine AUM Site**

**Navajo AUM Northern Region**

**Prepared by:**

**Weston Solutions, Inc.**

**Contract: W91238-06-F-0083**

**12767.063.496.1111**

**March 2010**

**Part I Site Identification, Location and Status****Site Names and ID numbers as applicable****Mine ID:** 103, 508**Map ID:** #103- N208  
#508- N209**CERCLIS:** **NNN000908849****Navajo Abandoned Mine Land Reclamation Program:** #103 – NA-0302  
#508 – NA-0317**Local name / Aliases:** Tom Nakai Chee No. 1; Tom Naki Chee #1**Chapter and local area:** #103 – Cove  
#508 – Cove**County:** Apache                    **State:** Arizona**Lat/Long:** #103 - 36.5399148408 N / -109.249036738 W  
#508 - 36.5380667228 N / -109.254889596 W**Nearby road and highway:** Indian Route 33                    **Local Post Office:** Cove, AZ**Surface Land Status: check one or more and provide ownership and contact information below**

<b>Tribal Trust Land</b>	<input checked="" type="checkbox"/>	<b>Public lands</b>	<input type="checkbox"/>
<b>Private</b>	<input type="checkbox"/>	<b>Tribal Fee Land</b>	<input type="checkbox"/>
<b>Bureau of Land Mgmt</b>	<input type="checkbox"/>	<b>Allotment</b>	<input type="checkbox"/>
<b>State</b>	<input type="checkbox"/>	<b>Fee land</b>	<input type="checkbox"/>

**Subsurface Mineral Rights:**

No information on subsurface mineral rights ownership was found in the EPA/AUM Database.

**Claim and operator information:**

The mine site surface land status is classified as Tribal Trust Land. Historical documents showed the operator of the mine as Kerr-McGee from 1960 to 1963, and Vanadium Corp. of America from 1963 to 1968. No other historical ownership / lease information was identified in the EPA/AUM database.

**Number of residential structures within 200 feet of mine:** None**Estimated volume of mine waste onsite:** #103 – 514 yd<sup>3</sup>  
#508 – 2,083 yd<sup>3</sup>

## Part II              Summary of radiological readings

### **Mine ID # 103**

#### **Highest gamma radiation measurement:**

18,135 counts per minute (cpm)

#### **Describe any other radiological measurements:**

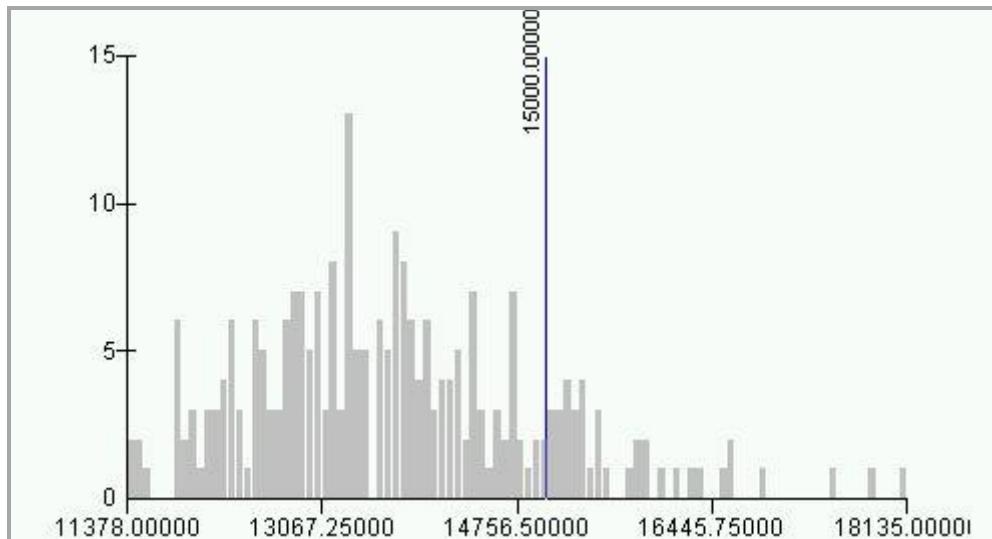
A total of 253 gamma radiation measurements were collected from the mine site, ranging from 11,378 cpm to 18,135 cpm. The majority of the site was inaccessible due to steep grades. The measurements are represented in Figures 2 and 3.

**Background Locations**  
#1 15,200 cpm

**Average background = 15,200 cpm**

#### **Distribution Chart and Statistics:**

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	253
Minimum:	11378.00000
Maximum:	18135.00000
Sum:	3462542.00000
Mean:	13685.93676
Median:	13580.00000
Standard Deviation:	1219.99262

**Mine ID # 508****Highest gamma radiation measurement:**

42,793 counts per minute (cpm)

**Describe any other radiological measurements:**

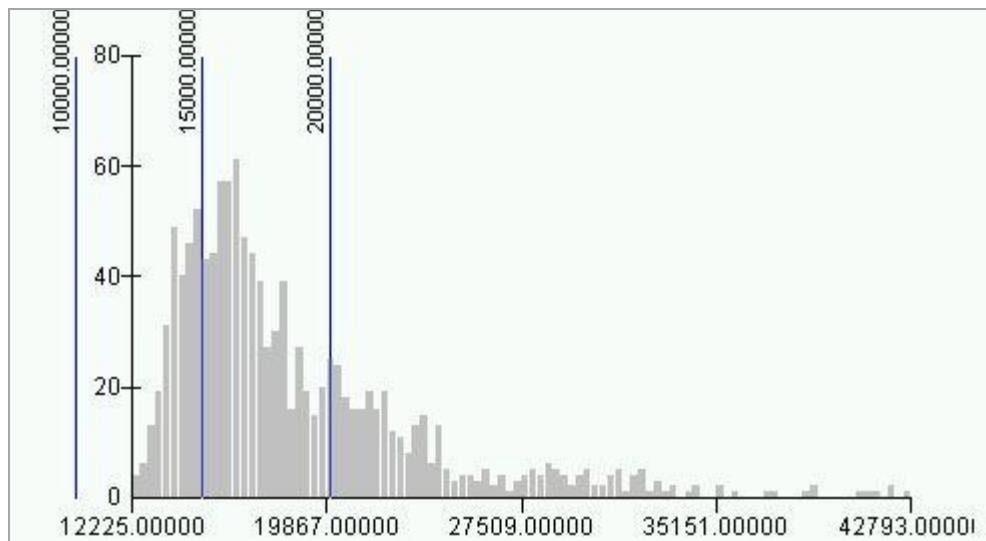
A total of 1,196 gamma radiation measurements were collected from the mine site, ranging from 12,225 cpm to 42,793 cpm. The measurements at the waste piles were found at levels of approximately 40,000 cpm. The measurements are represented in Figures 4 and 5.

**Background Locations**  
#1 16,800 cpm

**Average background = 16,800 cpm**

**Distribution Chart and Statistics:**

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	1196
Minimum:	12225.00000
Maximum:	42793.00000
Sum:	22224262.00000
Mean:	18582.15886
Median:	17028.50000
Standard Deviation:	4896.24787

**Part III        Status of Reclamation and Mine Waste****Mine ID #103**

**The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:**

**NAMLRP Status of the mine site: Reclaimed : Yes      Waste Pile onsite : Yes**

**NAMLRP Project Number: NA-0302**

**NAMLRP Mine features: 3 Portals, 1 Prospect**

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**The following information was obtained from field observations collected during the 2009 site screening:**

**Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.**

**Observed reclamation work and status:**

**Adits**

None

**Waste Piles**

Waste debris extending down inaccessible cliff face, 75' x 75' x 75' triangle, with a total estimated volume of 514 yd<sup>3</sup>

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

The majority of the site was inaccessible due to steep grades

**Mine ID #508**

**The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:**

**NAMLRP Status of the mine site: Reclaimed : Yes      Waste Pile onsite : Yes**

**NAMLRP Project Number: NA-0317**

**NAMLRP Mine features: 1 Portal**

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**The following information was obtained from field observations collected during the 2009 site screening:**

**Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.**

**Observed reclamation work and status:**

**Adits**

None

**Waste Piles**

2 waste debris piles: 100' long x 50 - 60' tall waste debris along cliff face to the N-NW direction; 250' long waste rock pile and soft sand/clay stretching 25' down SE side of slope, with a total estimated volume of 2,083 yd<sup>3</sup>

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

Concrete pads along the cliff face

## Part IV

### Site observations and Environs

**Observed Structures: list number of and describe human habitation status of structures at the following distances from mine:**

**0 to 200 feet:** None

**200 feet to 0.25 mile:** None

**Observed Public or commercial structure: list and describe all schools, clinics, Chapter Houses, places of business and any other structure used by members of the community at the following distances:**

**0 to 200 feet:** None

**200 feet to 0.25 mile:** None

**Levels measured around the perimeter(s) of the identified structure(s):** None

**Observed water sources: list the number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine:**

**0 to 0.25 miles:** None

**0.25 miles to 4 miles:** None

**Sensitive environments: note and describe all sensitive environments located within visible range of the mine site, including: wetlands, endangered species, habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation.**

None observed

**Known Site History: include information from interviews with Chapter officials and residents. Note information on mine ownership, type of mining operation, period of operation, known amount of production, and any other information as provided.**

Mesa V consists of 2 mine sites with a total area of 30,435.67 m<sup>2</sup> (#103 – 17,559.61 m<sup>2</sup>, #508 – 19, 12,876.06 m<sup>2</sup>). The mine was identified as being operational from 1960 to 1968. Historical documents showed the operator of the mine as Kerr-McGee from 1960 to 1963, and Vanadium Corp. of America from 1963 to 1968. While operational, the mine had a total reported production volume of 55,599 tons. No other historical information or any additional ownership / lease information was identified in the EPA/AUM database.

## **Part V              Response Action Summary**

**Site Name(s):** Mesa V        **Chapter:** Cove

### **Decision Criteria**

**Is there an unreclaimed waste pile at the site?** Yes

**At what distance from the waste pile is the nearest residential structure located?** None

**At what distances from the waste pile are there potential drinking water sources?** None

**Is there a reclamation cap or sealed adit in place at the site?** None

**Is the cap/seal functionally intact?** None

**Is the cap/seal sufficiently degraded to create a concern about releases?** No

**At what distance from the cap/seal is the nearest domestic structure located?** None

**At what distance from the cap/seal is the nearest domestic drinking water source?** None

### **Summary of emergency response factors**

None

### **Summary hazard ranking system factors**

None

### **Summary of reclamation factors**

Waste piles found at each site

## Part VI Photos



Photo 1. Mine site #103 inaccessible waste pile



Photo 2. Mine site #103 inaccessible area



Photo 3. Mine site #103 steep grades



Photo 4. Mine site #508



Photo 5. Mine site #508 access road



Photo 6. Mine site #508 concretepads



Photo 7. Mine site #508 waste pile



Photo 8. Mine site #508 waste pile

**Part VII      Contacts Reports and Information**Name: Stanley Edison (928) 871-6861Eugene Esplain (928) 871-7331Title or official role (if any) Navajo EPA Superfund ProgramAddress PO Box 2946, Window Rock, AZ 86515Information provided Lead Regulatory Agency

Name\_\_\_\_\_

Title or official role (if any) \_\_\_\_\_

Address\_\_\_\_\_

Telephone number\_\_\_\_\_

Information provided\_\_\_\_\_

Name\_\_\_\_\_

Title or official role (if any) \_\_\_\_\_

Telephone number\_\_\_\_\_

Information provided\_\_\_\_\_

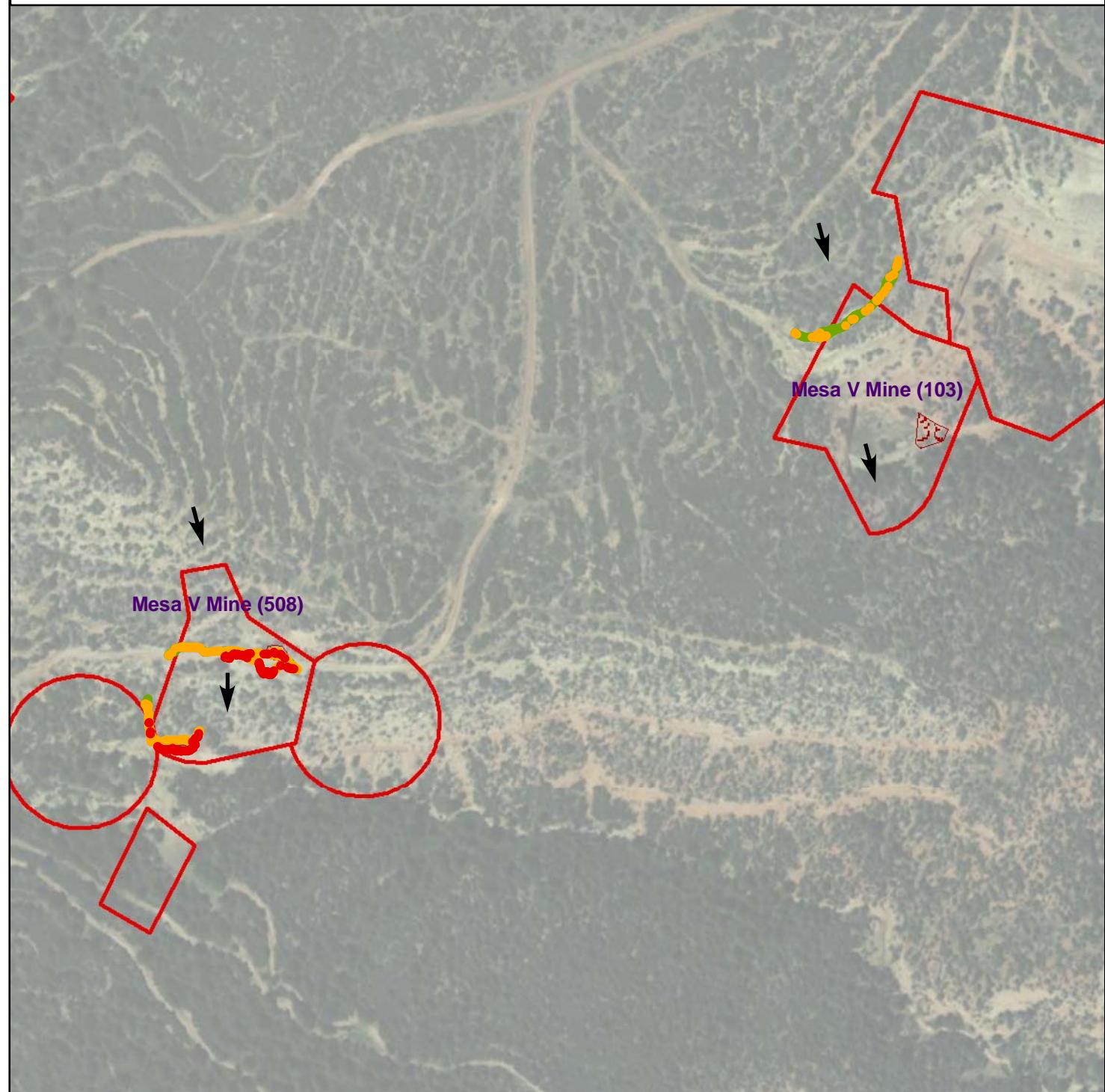
Name\_\_\_\_\_

Title or official role (if any) \_\_\_\_\_

Telephone number\_\_\_\_\_

Information provided\_\_\_\_\_

**Figure 1 - Gamma Radiation Measurements**  
**Mesa V Mines (103, 508)**  
**Cove Chapter, Navajo Nation, Arizona**



### Legend

#### Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000



Observed Waste Pile



General Direction Down-Slope



Mine Claim Boundaries

Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)

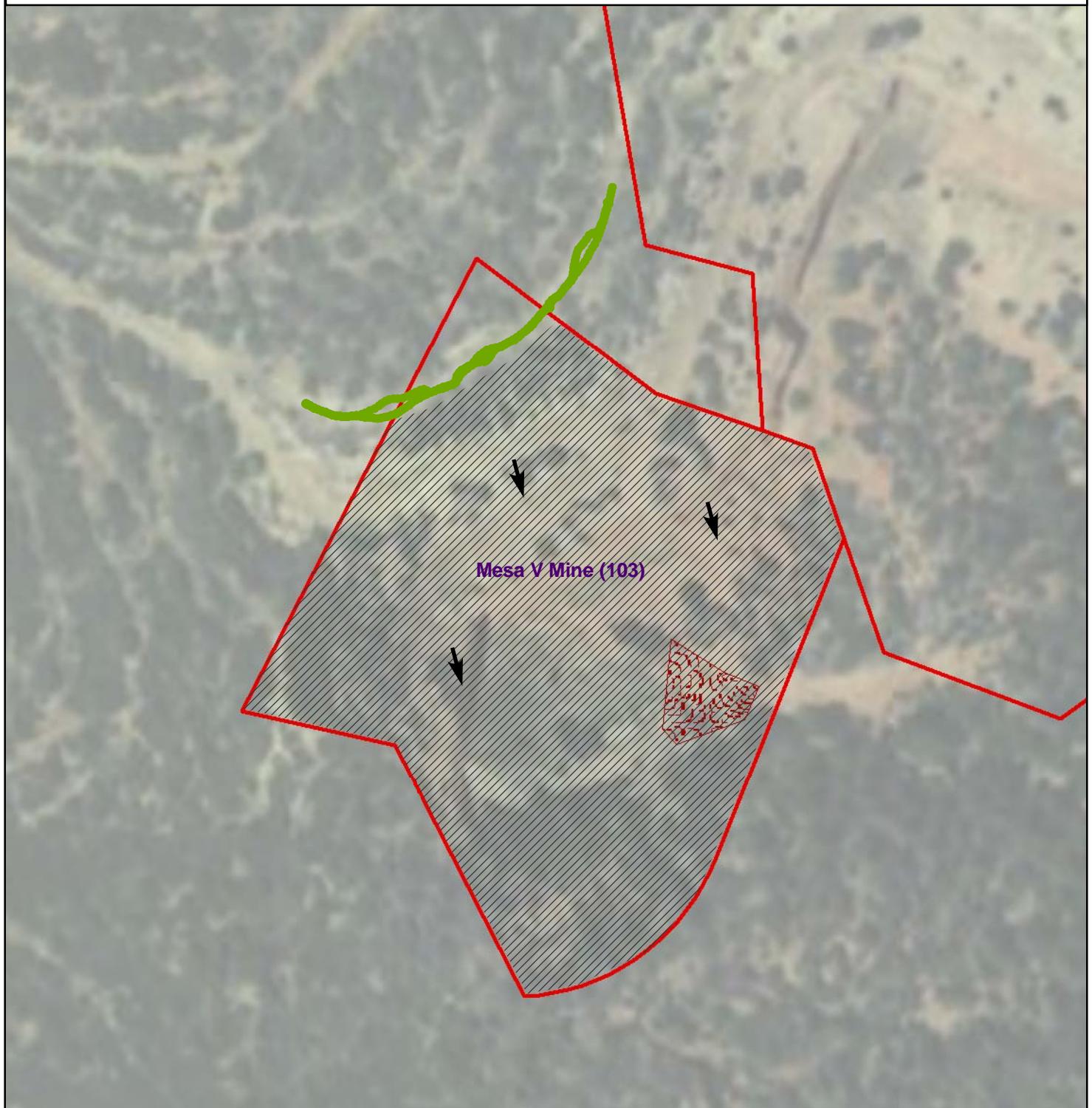


Feet  
0 500



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**Figure 2 - Gamma Radiation Measurements, Above Two Times Background**  
**Mesa V Mine (103)**  
**Cove Chapter, Navajo Nation, Arizona**



#### Legend

##### Gamma Radiation Measurements

- < 2X Background
- > 2X Background

Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)

Average background = 15,200 cpm

 Observed Waste Pile

 Inaccessible due to steep grades

 General Direction Down-Slope

 Mine Claim Boundaries

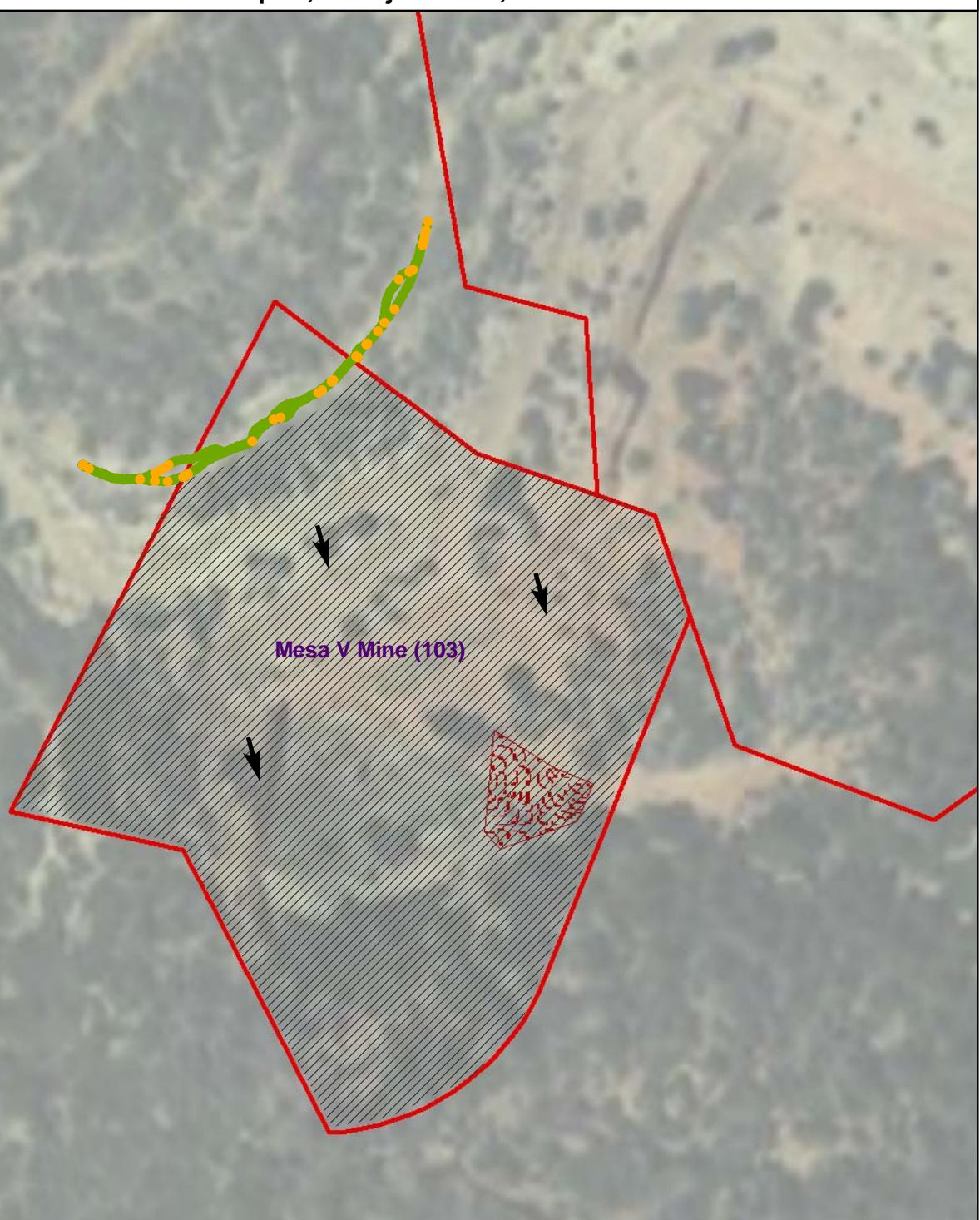


0 150 Feet



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**Figure 3 - Gamma Radiation Measurements**  
**Mesa V Mine (103)**  
**Cove Chapter, Navajo Nation, Arizona**



#### Legend

##### Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000



Observed Waste Pile



Inaccessible due to steep grades



General Direction Down-Slope



Mine Claim Boundaries

Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)

Average background = 15,200 cpm

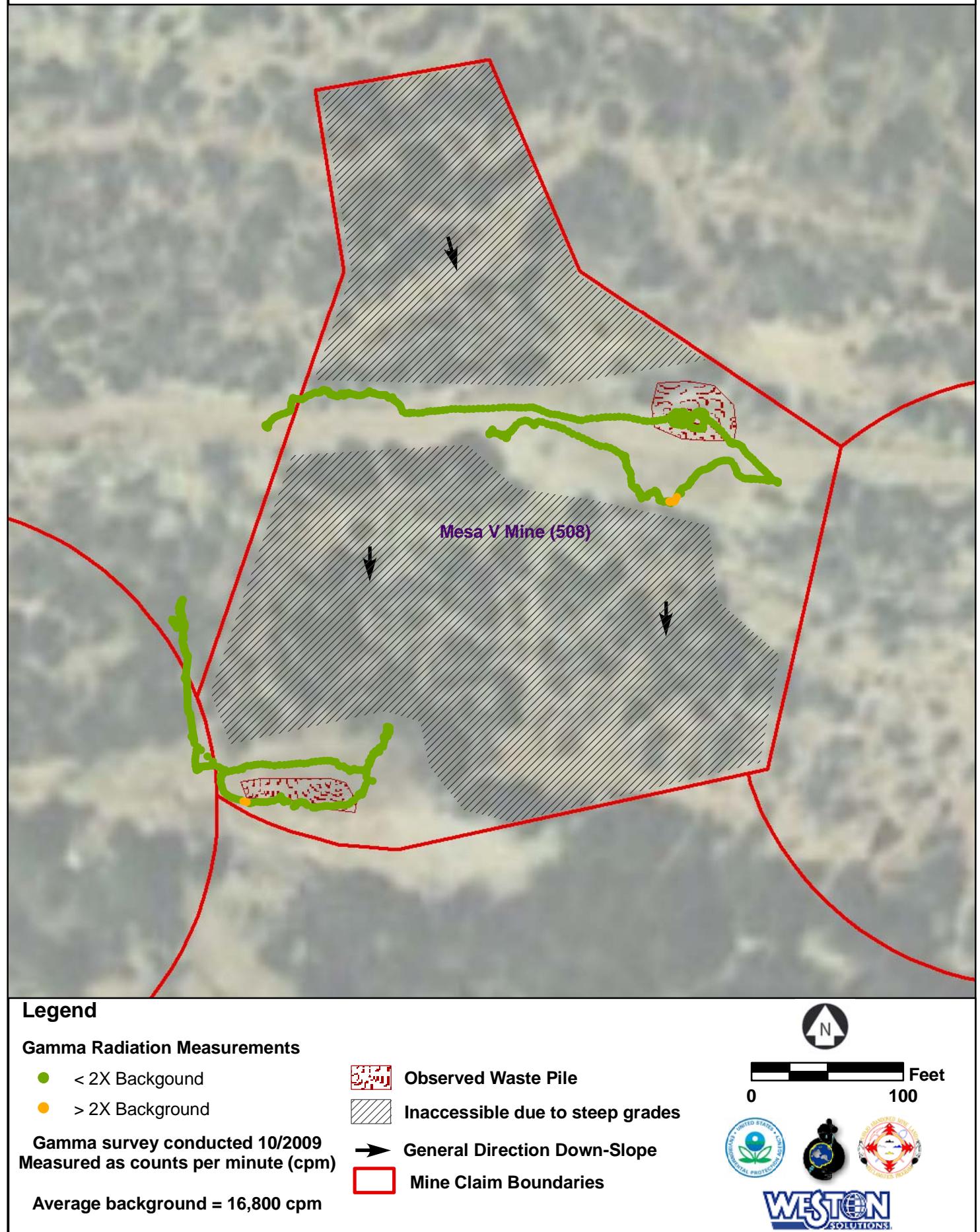


0 150 Feet

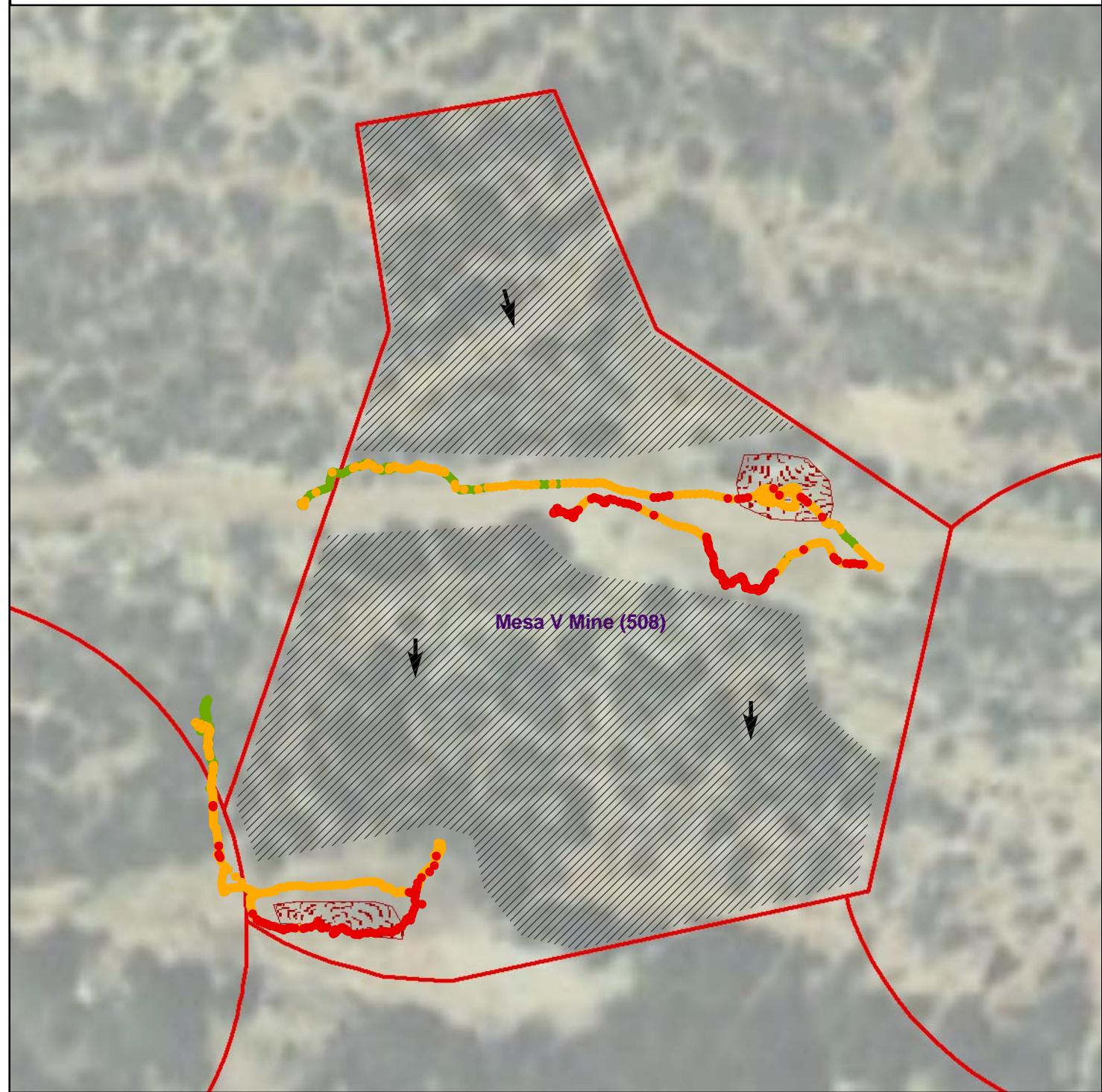


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**Figure 4 - Gamma Radiation Measurements, Above Two Times Background**  
**Mesa V Mine (508)**  
**Cove Chapter, Navajo Nation, Arizona**



**Figure 5 - Gamma Radiation Measurements**  
**Mesa V Mine (508)**  
**Cove Chapter, Navajo Nation, Arizona**



#### Legend

##### Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000



Observed Waste Pile



Inaccessible due to steep grades



General Direction Down-Slope



Mine Claim Boundaries

Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)

Average background = 16,800 cpm



0 100 Feet



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